

# ANNEX C

## Limits of Effective Radiated Power and Effective Antenna Height for the Band 421-430 MHz

Effective Radiated Power (ERP) is defined as the product of the power supplied to the antenna and its gain relative to a half-wave dipole in a given direction.

For base stations in the Coordination Zone, Table C1 lists the limits of ERP corresponding to the Effective Antenna Height (EAH) ranges shown. EAH is calculated by subtracting the Assumed Average Terrain Elevation (AATE) given in Table C2 from the antenna elevation above mean sea level.

Effective Antenna Height (EAH)		Maximum Effective Radiated Power (ERP) towards the border Watts
Feet	Metres	
up to 500	up to 152	250
501-1000	153- 305	150
1001-1500	306- 457	75
1501-2000	458- 609	40
2001-2500	610- 762	20
2501-3000	763- 914	15
3001-4000	915-1210	10
above 4000	above 1210	5

Table C1  
Limits of ERP and EAH

Table C2 lists the values of Assumed Average Terrain Elevations (AATE) within the Coordination Zone on both sides of the United States-Canada Border.

Longitude (°) (°West)	Latitude (°) (°North)	Assumed Average Terrain Elevations			
		United States		Canada	
		feet	metres	feet	metres
65 < 0 < 69	0 < 45	0	0	0	0
"	45 < 0 < 46	300	91	300	91
"	0 > 46	1000	305	1000	305
69 < 0 < 73	all	2000	609	1000	305
73 < 0 < 74	"	500	152	500	152
74 < 0 < 78	"	250	76	250	76
78 < 0 < 80	0 < 43	500	152	500	152
"	0 > 43	250	76	250	76
80 < 0 < 90	all	600	183	600	183
90 < 0 < 98	"	1000	305	1000	305
98 < 0 < 102	"	1500	457	1500	457
102 < 0 < 108	"	2500	762	2500	762
108 < 0 < 111	"	3500	1066	3500	1066
111 < 0 < 113	"	4000	1219	3500	1066
113 < 0 < 114	"	5000	1524	4000	1219
114 < 0 < 121.5	"	3000	914	3000	914
0 > 121.5	"	0	0	0	0

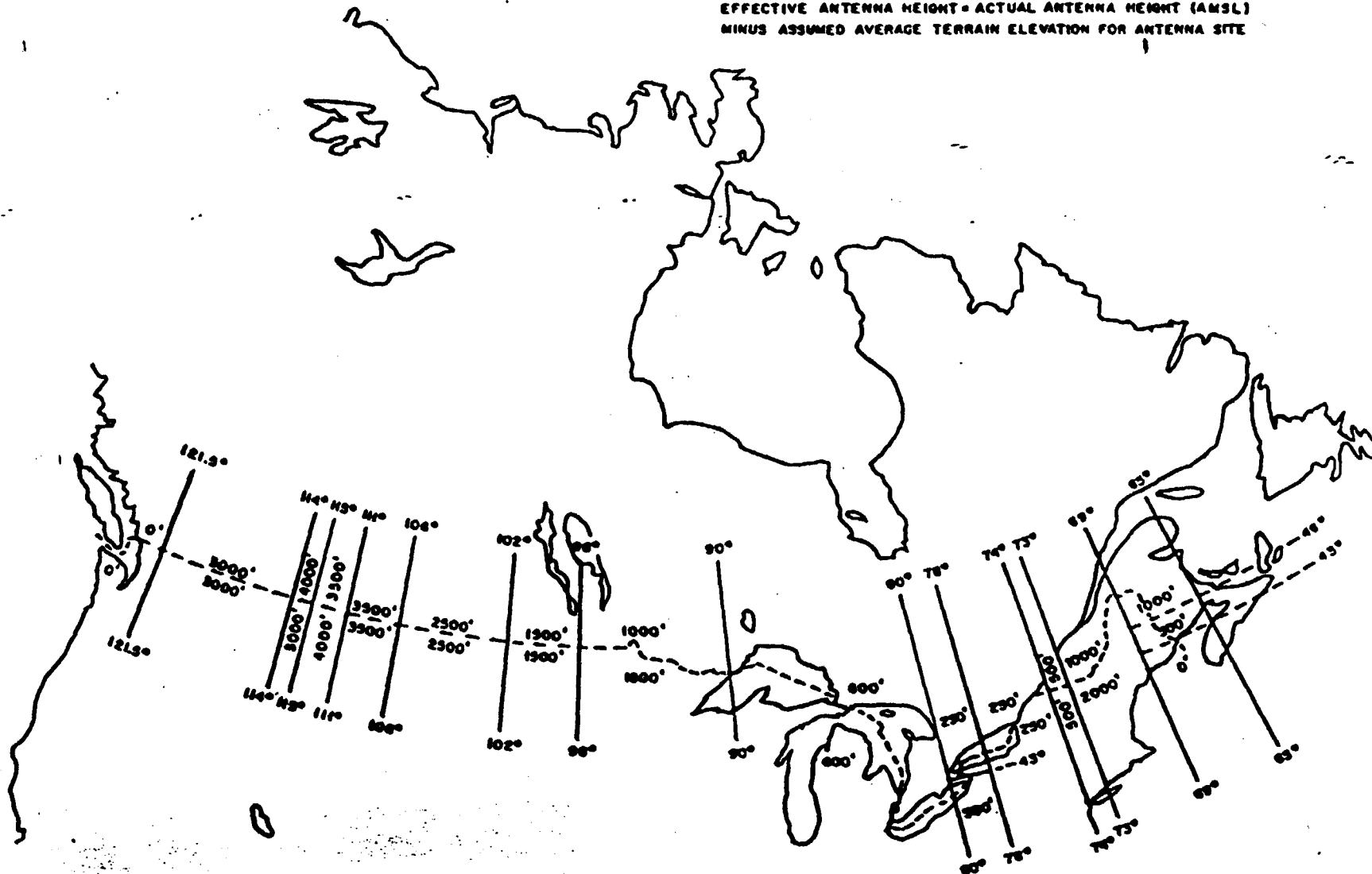
Table C2: Values of Assumed Average Terrain Elevation (AATE)

# CANAL UNITED STATES SHARING ARRANGEMENT 421 - 430 MHz BAND;

## ASSUMED AVERAGE TERRAIN ELEVATIONS

MAP ILLUSTRATING ASSUMED AVERAGE TERRAIN ELEVATIONS DEFINED IN TABLE C2 FOR  
USE IN DETERMINING EFFECTIVE ANTENNA HEIGHT IN CONJUNCTION WITH  
POWER/HEIGHT EQUIVALENCE TABLE C1

I.E.  
EFFECTIVE ANTENNA HEIGHT = ACTUAL ANTENNA HEIGHT (AMSL)  
MINUS ASSUMED AVERAGE TERRAIN ELEVATION FOR ANTENNA SITE

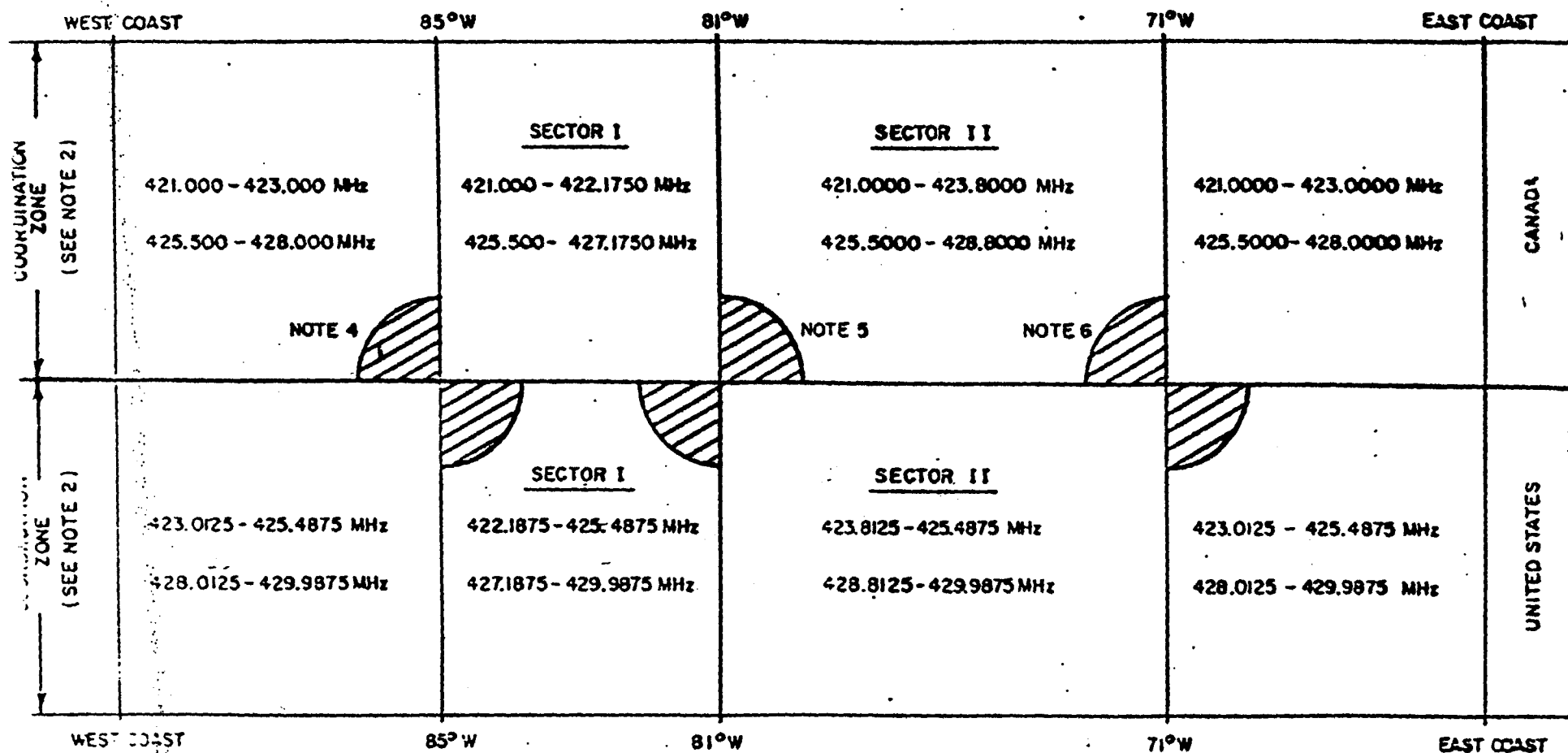


ELEVATIONS SHOWN IN FEET

NOT TO SCALE

Figure 1

## CANADA/UNITED STATES SHARING ARRANGEMENT

421-430 MHz BAND

NOTES: 1. ALL FREQUENCIES IN MEGAHERTZ.

2. ASSIGNMENTS IN ALASKA/YUKON-BRITISH COLUMBIA  
COORDINATION ZONE EXCLUDED. SEE SECTION 2.3

3. ASSIGNMENTS SUBJECT TO ANNEX C REQUIREMENTS.

4. OVERLAP AREA AT 85°W: FREQUENCY BANDS AFFECTED  
422.1875 - 423.0000; 427.1875 - 428.0000 MHz.

5. OVERLAP AREA AT 81°W: FREQUENCY BANDS AFFECTED  
422.1875 - 423.8000; 427.1875 - 428.8000 MHz.

6. OVERLAP AREA AT 71°W: FREQUENCY BANDS AFFECTED  
423.0125 - 423.8000; 428.0125 - 428.8000 MHz.

Figure 2

CANADA/UNITED STATES SHARING ARRANGEMENT:

421-430 MHz BAND

COORDINATION ZONE

Not to Scale

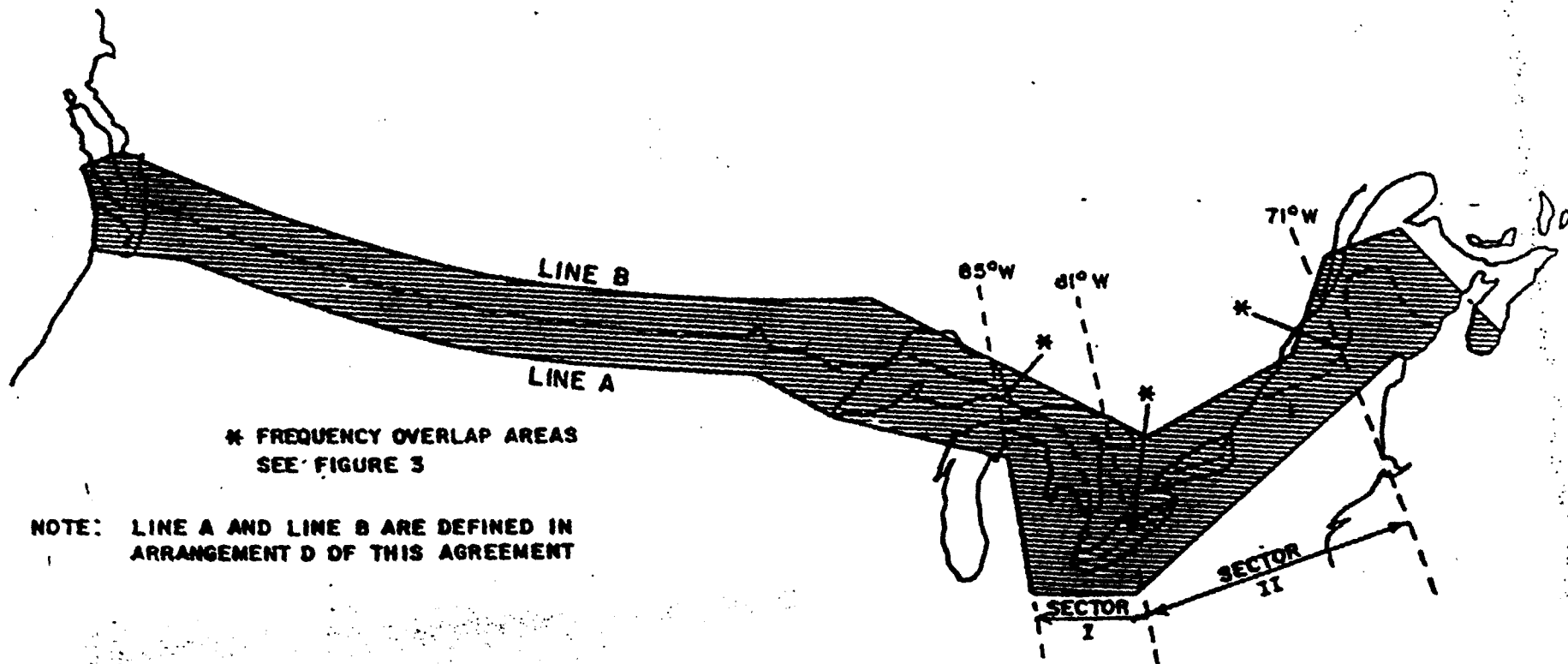




Figure 3

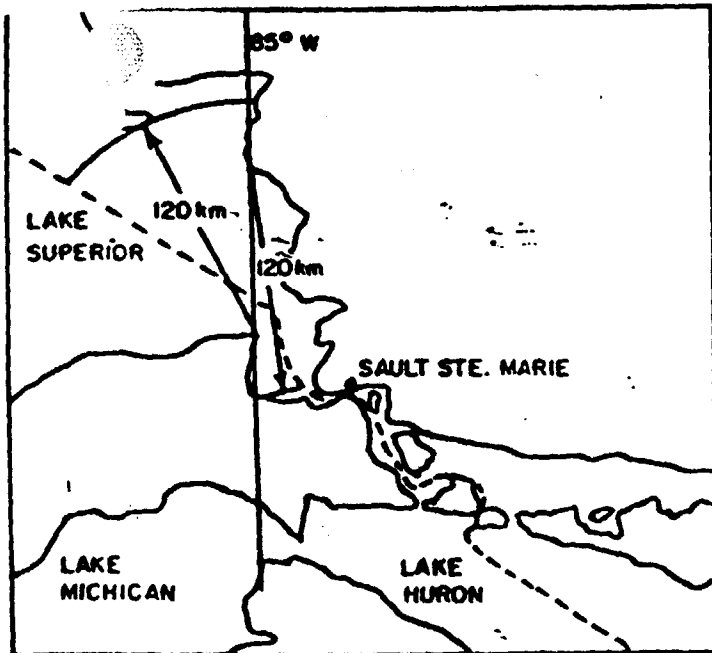
# CANADA/UNITED STATES SHARING ARRANGEMENT

421-430 MHz BAND:

## BAND OVERLAP COORDINATION

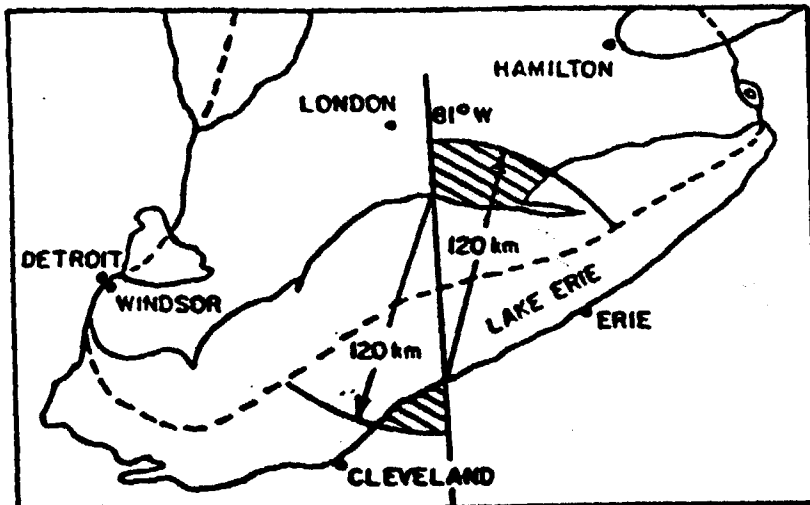
-  AREAS IN WHICH COORDINATION IS REQUIRED
-  AREAS IN WHICH COORDINATION IS NOT REQUIRED
- US/CANADA BORDER

NOT TO SCALE



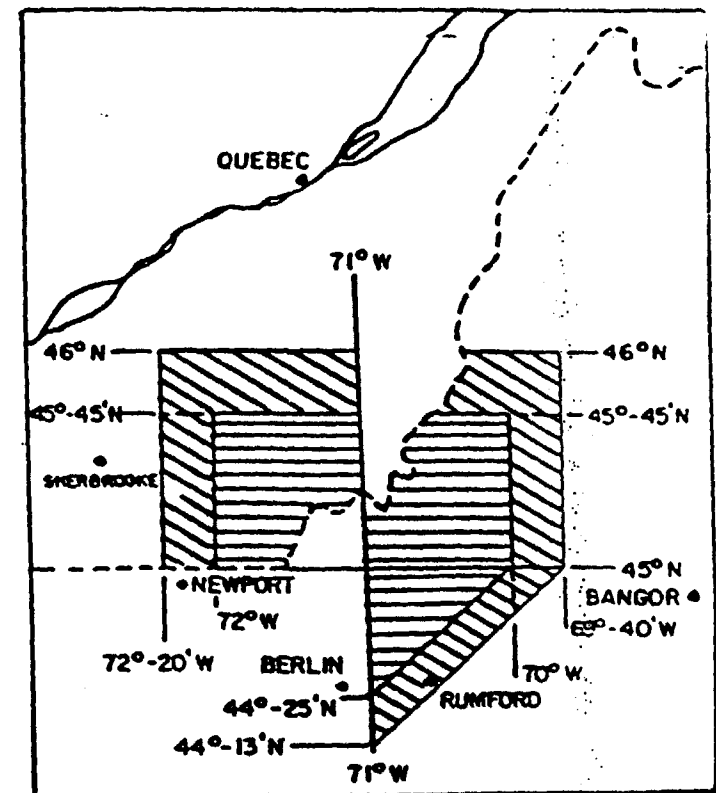
### PERMITTED CENTRE FREQUENCIES (25 kHz SPACING)

CANADA 422.2125 - 422.9875 MHz U.S.: 422.200 - 422.975 MHz  
427.2125 - 427.9875 MHz 427.200 - 427.975 MHz



### PERMITTED CENTRE FREQUENCIES (25 kHz SPACING)

CANADA: 422.2125 - 423.7875 MHz U.S.: 422.200 - 423.775 MHz  
427.2125 - 428.7875 MHz 427.200 - 428.775 MHz



### PERMITTED CENTRE FREQUENCIES (25 kHz SPACING)

CANADA: 423.0375 - 423.7875 MHz U.S.: 423.025 - 423.775 MHz  
428.0375 - 428.7875 MHz 428.025 - 428.775 MHz

Memorandum of Understanding

Domestic Utilization of the VHF Aeronautical  
Mobile (R) Frequency Bands above 126.825 Mc/s  
in the United States and Canada

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1. Representatives of the Department of Transport, Canada, the United States Federal Aviation Agency and the United States Federal Communications Commission have held two meetings, in Washington January 21-22, and in Ottawa February 16-18, 1960, to discuss the United States' proposal to clear the bands 126.825 - 128.825 Mc/s and 132.025 - 135.0 Mc/s for air-traffic control communications.
2. The Representatives of the US and Canada at the Washington and Ottawa meetings, in consideration of the US proposal, took into account the necessity of re-accommodating enroute operational control communications now in the bands proposed for ATC use.
3. It was unanimously agreed that the requirement for the ATC use of the bands 126.825 - 128.825 and 132.025 - 135.0 Mc/s was justified and deployment frequency utilization plans for this service in the United States and Canada, contained in Annexes A and B, were jointly prepared by the Representatives of the Federal Aviation Agency and the Department of Transport. Future modifications to these plans will be the subject of direct co-ordination between the FAA and DOT.
4. The displacement of enroute operational control communications from the band 126.825 - 128.825 Mc/s, to enable this band to be available for ATC communications, presented a major problem. To meet the US and Canadian essential requirements, taking into account the limitations of equipment now in use, also the imperative need to implement the ATC programme this year, it was not technically feasible to accommodate all these requirements within the band 128.825 - 132.025 Mc/s.
  - 4.1 The Canadian Representatives considered that the only solution in the light of the facts was to accommodate some of the Canadian domestic requirements in the band 135.0 - 135.5 Mc/s, although recognizing that this half megacycle of space was not available in the US for this service. In Canada this additional spectrum space will very shortly be cleared for the Aeronautical (R) Service. The Canadian Representatives also recognized that the US Representatives were not empowered to commit their Government to the Canadian proposal and that it would require consideration by the US Government Agencies concerned. Nevertheless, to avoid the contraction of essential assignments to the mutual disadvantage of both countries, the Canadian Representatives felt that every effort should be made to obtain US agreement to the Canadian proposal to enable Canadian acceptance of, and participation in, the proposed joint ATC implementation programme.

4.2 Therefore, enroute operational control frequency utilization draft plans, contained in Annexes C and D, have been prepared on the following basis:

(a) US and Canadian plans for the band 128.825 - 132.025 Mc/s;

(b) Canadian plan for the domestic utilization of the band 135.0 - 135.5 Mc/s - (Note: The US Representatives stated that they were not in a position to accept the 135.0 - 135.5 Mc/s portion of the plan.)

4.3 Provided the US can accept the draft plans, referred to in (a) and (b) above, the future modification of these plans will be the subject of direct co-ordination between the Department of Transport and the Federal Communications Commission for the band 128.825 - 132.025 Mc/s, and between the Department of Transport and the US Interdepartment Radio Advisory Committee for the band 135.0 - 135.5 Mc/s.

5. The provisions of the plans contained in Annexes A, B, C, & D shall not restrict the use by either country of any frequency at any location which is mutually acceptable to the parties involved.
6. The areas of the US and Canada for which future co-ordination is necessary, and the technical criteria to be used to determine the acceptability of proposed additional frequency assignments, will be subject to mutual agreement between the technical staff of the Agencies responsible for such co-ordination.
7. Implementation of plans:
  - (a) The US Representatives stated that they proposed to commence implementation of the plans dealt with in Annexes A and C between July 1 and September 6, 1960, or earlier if practicable;
  - (b) The Canadian Representatives stated that they proposed to commence implementation of the plans dealt with in Annexes B and D during the same period (subject to co-ordination between the Department of Transport and the Interdepartment Radio Advisory Committee, above 135 Mc/s).



8. With respect to Canadian proposed use of the band 135.0 - 135.5 Mc/s, the US Representatives called attention to the US allocation of this portion of the spectrum, pointing out that any co-ordination pertaining to Canadian use of the band 135.0 - 135.5 Mc/s must be the subject of separate negotiation.

8.1 Recognizing the above, it is mutually understood that this matter is outstanding and must be the subject of separate negotiations between the appropriate authorities.

For United States

Allen Barnabei

John R. Evans

Charles D. Innes

Donald Mitchell

For Canada

A. J. Dawson

E. B. Powell

H. F. Jackson

H. F. Salisbury

Ottawa, February 18, 1960.

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(t)

## CANADA

### **Telecommunication: Coordination and Use of Radio Frequencies Above 30 Megacycles per Second**

*Agreement revising the technical annex to the agreement of  
October 24, 1962.*

*Effected by exchange of notes*

*Signed at Ottawa June 16 and 24, 1965;*

*Entered into force June 24, 1965.*

*The American Ambassador to the Canadian Secretary of State for  
External Affairs*

EMBASSY OF THE  
UNITED STATES OF AMERICA  
Ottawa, June 16, 1965.

No. 264

EXCELLENCY:

I have the honor to refer to the Exchange of Notes dated October 24, 1962, [1] which contains an Agreement between the Government of Canada and the Government of the United States, on the subject of "Coordination and Use of Radio Frequencies Above 30 Megacycles per Second."

At a meeting held in Washington on October 1 and 2, 1964, the representatives of our two governments, after discussing the problem of frequency assignment and use, recommended that certain amendments be made in the Technical Annex to the said Agreement. These proposed amendments are embodied in the enclosed revision of the Technical Annex, and are acceptable to the Government of the United States. Under paragraphs (5) and (12)(b) of the 1962 Agreement amendments of the nature here involved can be made only by an Exchange of Notes.

Should the Government of Canada find that the said amendments are acceptable to it, I propose that this note and your reply concurring therewith constitute an Agreement between our two Governments to replace the Technical Annex appended to the 1962 Agreement by the enclosed revision thereof.

Accept, Excellency, the renewed assurances of my highest consideration.

W. W. BUTTERWORTH

Enclosure:

Revision of Technical Annex

His Excellency

PAUL MARTIN, P.C. Q.C.,

Secretary of State for External Affairs,  
Ottawa.

<sup>1</sup> TIAS 5205; 13 UST 2418.

**AMENDING ANNEX  
TO THE  
TECHNICAL ANNEX  
TO THE**

**EXCHANGE OF NOTES OF OCTOBER 24, 1962 BETWEEN THE  
GOVERNMENT OF CANADA AND THE GOVERNMENT OF  
THE UNITED STATES OF AMERICA CONSTITUTING AN  
AGREEMENT FOR RADIO FREQUENCY COORDINATION  
AND USE OF RADIO FREQUENCIES ABOVE THIRTY  
MEGACYCLES PER SECOND.**

**INDEX TO THE TECHNICAL ANNEX  
LISTING**

**FREQUENCY BANDS, AUTHORIZED COORDINATION AGENCIES OR  
CHANNELS, AND ARRANGEMENTS**

Item	Frequency Bands Mc/s	Authorized Coordination Agencies or Channels		Coordination Arrange- ments and Remarks
		U.S.	Canada	
1	30. 56-32. 0	FCC	DOT	Arrangement A
2	32. 00-33. 0 ✓	IRAC	DOT	Arrangement D
3	33. 0-34. 0	FCC	DOT	Arrangement A
4	34. 0-35. 0 ✓	IRAC	DOT	Arrangement D
5	35. 0-36. 0	FCC	DOT	Arrangement A
6	36. 0-37. 0 ✓	IRAC	DOT	Arrangement D
7	37. 0-38. 0	FCC	DOT	Arrangement A
8	38. 0-39. 0 ✓	IRAC	DOT	Arrangement D
9	39. 0-40. 0	FCC	DOT	Arrangement A
10	40. 0-42. 0 ✓	IRAC	DOT	Arrangement D
11	42. 0-46. 6	FCC	DOT	Arrangement A
12	46. 6-47. 0	IRAC	DOT	ITU RR 228
13	47. 0-49. 6	FCC	DOT	Arrangement A
14	49. 6-50. 0	IRAC	DOT	ITU RR 228
15	72. 0-73. 0	FCC	DOT	Arrangement A
16	74. 6-75. 4	FAA	DOT	Arrangement B
17	75. 4-76. 0	FCC	DOT	Arrangement A
18	108. 0-117. 975	FAA	DOT	Arrangement B
19	117. 975-121. 975	FAA	DOT	Arrangement B
20	121. 975-123. 075	FCC	DOT	Arrangement B
21	123. 075-123. 575	FCC	DOT	Arrangement B
22	123. 575-128. 825	FAA	DOT	Arrangement B

Item	Frequency Bands Mc/s	Authorized Coordination Agencies or Channels		Coordination Arrange- ments and Remarks
		U.S.	Canada	
23	128. 825-132. 025	FCC	DOT	Arrangement B
24	132. 025-136. 0	FAA	DOT	Arrangement B
25	138. 0-144. 0	JCS	CDS*	Arrangement C
26	148. 0-149. 9	IRAC	DOT	Arrangement D
27	148. 0-149. 9	JCS	CDS*	Arrangement C
28	150. 05-150. 8	IRAC	DOT	Arrangement D
29	150. 05-150. 8	JCS	CDS*	Arrangement C
30	150. 8-174. 0	FCC	DOT	Arrangement A
31	162. 0-174. 0	IRAC	DOT	Arrangement D
32	216. 0-225. 0	JCS	CDS*	Arrangement C
33	328. 6-335. 4	FAA	DOT	Arrangement B
34	420. 0-450. 0	JCS	CDS*	Arrangement C
35	450. 0-470. 0	FCC	DOT	Arrangement A
36	890. 0-942. 0	JCS	CDS*	Arrangement C
37	942. 0-960. 0	FCC	DOT	Arrangement A
38	960. 0-1215. 0	FAA	DOT	Arrangement B
39	1215. 0-1400. 0	JCS	CDS*	Arrangement C
40	1300. 0-1350. 0	FAA	DOT	Arrangement C
41	1535. 0-1540. 0			Coordination not required at this time
42	1540. 0-1660. 0	IRAC	DOT	Arrangement B
43	1710. 0-1850. 0	IRAC	DOT	Arrangement D
44	1850. 0-2200. 0	FCC	DOT	Arrangement A
45	2110. 0-2120. 0	IRAC	DOT	Arrangement D
46	2200. 0-2290. 0	IRAC	DOT	Arrangement D
47	2300. 0-2450. 0	JCS	CDS*	Arrangement C
48	2450. 0-2690. 0	FCC	DOT	Arrangement A
49	2700. 0-2900. 0	FAA	DOT	Arrangement C
50	2700. 0-3700. 0	JCS	CDS*	Arrangement C
51	2900. 0-3100. 0	IRAC	DOT	Arrangement C
52	3700. 0-4200. 0	FCC	DOT	Arrangement A
53	4200. 0-4400. 0	IRAC	DOT	Arrangement B
54	4400. 0-4990. 0	IRAC	DOT	Arrangement D
55	5000. 0-5250. 0	IRAC	DOT	Arrangement B
56	5250. 0-5925. 0	JCS	CDS*	Arrangement C
57	5460. 0-5650. 0	IRAC	DOT	Arrangement C
58	5925. 0-7125. 0	FCC	DOT	Arrangement A
59	7125. 0-8400. 0	IRAC	DOT	Arrangement D
60	8400. 0-8500. 0			Coordination not required at this time
61	8500. 0-10500. 0	JCS	CDS*	Arrangement C
62	9000. 0-9200. 0	FAA	DOT	Arrangement C
63	9300. 0-9500. 0	IRAC	DOT	Arrangement C

\*CDS - Chief of Defence Staff - Authorized Coordination Channel only.

TIAS 5883

Item	Frequency Bands Mc/s	Authorized Coordination Agencies or Channels		Coordination Arrangements and Remarks
		U.S.	Canada	
	Gc/s			
64	10.55-10.68	FCC	DOT	Arrangement A
65	10.70-13.25	FCC	DOT	Arrangement A
66	13.25-13.4			Coordination not required at this time
67	13.4-14.0	JCS	CDS*	Arrangement C
68	14.0-15.4			Coordination not required at this time
69	15.4-15.7	IRAC	DOT	Arrangement B
70	15.7-17.7	JCS	CDS*	Arrangement C
71	17.7-23.0			Coordination not required at this time
72	23.0-24.25	JCS	CDS*	Arrangement C
73	24.25-33.4			Coordination not required at this time
74	33.4-36.0	JCS	CDS*	Arrangement C
75	36.0 and above			Coordination not required at this time

\*CDS - Chief of Defence Staff - Authorized Coordination Channel only.

**ARRANGEMENT A****ARRANGEMENT BETWEEN THE DEPARTMENT OF TRANSPORT AND THE FEDERAL COMMUNICATIONS COMMISSION FOR THE EXCHANGE OF FREQUENCY ASSIGNMENT INFORMATION AND ENGINEERING COMMENTS ON PROPOSED ASSIGNMENTS ALONG THE CANADA-UNITED STATES BORDERS IN CERTAIN BANDS ABOVE 30 MC/S**

(Adopted by correspondence May, 1950; Revised Ottawa, March, 1962 and Washington, D.C., October, 1964)

1. (a) This arrangement involves assignments in the following frequency bands, except as provided in sub-paragraphs (b), (c) and (d) below:

<u>Mc/s</u>	<u>Mc/s</u>	<u>Mc/s</u>
30.56 - 32.00	75.40 - 76.00	1850.0 - 2200.0
33.00 - 34.00		2450.0 - 2690.0
35.00 - 36.00		3700.0 - 4200.0
37.00 - 38.00		5925.0 - 7125.0
39.00 - 40.00	150.80 - 174.00	
42.00 - 46.60	450.00 - 464.725	
47.00 - 49.60	465.275 - 470.00	
72.00 - 73.00	942.00 - 960.00	

Gc/s

10.55 - 10.68      10.70 - 13.25

- (b) The following frequencies are not involved in this arrangement because of the nature of the services:

<u>Mc/s</u>	<u>Mc/s</u>	
156.3	156.7	157.20
156.35	156.8	157.25
156.4	156.9	157.30
156.45	156.95	157.35
156.5	157.0 and 161.6	157.40
156.55	157.05	
156.6	157.1	
156.65	157.15	

- (c) Assignments proposed in accordance with the railroad industry radio frequency allotment plan along the United States-Canada borders utilized by the Federal Communications Commission and the Department of Transport, respectively, may be excepted from this arrangement at the discretion of the referring Agency.
  - (d) Assignments proposed in any radio service in frequency bands below 470 Mc/s appropriate to this arrangement, other than those for stations in the Domestic Public (land mobile or fixed) category, may be excepted from this arrangement at the discretion of the referring Agency if a base station assignment has been made previously under the terms of this arrangement or prior to its adoption in the same radio service and on the same frequency and in the local area, and provided the basic characteristics of the additional station are sufficiently similar technically to the original assignment to preclude harmful interference to existing stations across the border.
2. (a) For Bands below 470 Mc/s, the areas which are involved lie between Lines A and B and between Lines C and D, as follows:
- Line A -Begins at Aberdeen, Wash. running by great circle arc to the intersection of 48° N., 120° W., thence along parallel 48° N., to the intersection of 95° W., thence by great circle arc through the southernmost point of Duluth, Minn., thence by great circle arc to 45° N., 85° W., thence southward along meridian 85° W., to its intersection with parallel 41° N., thence along parallel 41° N., to its intersection with meridian 82° W., thence by great circle arc through the southernmost point of Bangor, Me., thence by great circle arc through the southernmost point of Searsport, Me., at which point it terminates; and
- Line B -Begins at Tofino, B.C., running by great circle arc to the intersection of 50° N., 125° W., thence along parallel 50° N., to the intersection of 90° W., thence by great circle arc to the intersection of 45° N., 79° 30' W., thence by great circle arc through the northernmost point of Drummondville, Quebec (Lat: 45° 52' N., Long: 72° 30' W.), thence by great circle arc to 48° 30' N., 70° W., thence by great circle arc through the northernmost point of Campbellton, N.B., thence by great circle arc through the northernmost point of Liverpool, N.S., at which point it terminates.
- Line C -Begins at the intersection of 70° N., 144° W., thence by great circle arc to the intersection of 60° N., 143° W., thence by great circle arc so as to include all of the Alaskan Panhandle; and



Line D - Begins at the intersection of 70° N., 138° W., thence by great circle arc to the intersection of 61° 20' N., 139° W. (Burwash Landing), thence by great circle arc to the intersection of 60° 45' N., 135° W., thence by great circle arc to the intersection of 56° N., 128° W., thence south along 128° meridian to Lat. 55° N., thence by great circle arc to the intersection of 54° N., 130° W., thence by great circle arc to Port Clements, thence to the Pacific Ocean where it ends.

- (b) For all stations using bands between 470 Mc/s and 1000 Mc/s; and for any station of a terrestrial service using a band above 1000 Mc/s, the areas which are involved are as follows:
    - (1) For a station the antenna of which looks within the 200° sector toward the Canada-United States borders, that area in each country within 35 miles of the borders; and;
    - (2) For a station the antenna of which looks within the 160° sector away from the Canada-United States borders, that area in each country within 5 miles of the borders;
    - (3) The area in either country within coordination distance (paragraph 7) of a receiving earth station in the other country which uses the same band.
  - (c) For bands above 1000 Mc/s, coordination of an earth station is required if any portion of the Canada-United States borders lies within the coordination distance (paragraph 7) of the earth station.
3. (a) Each Agency shall furnish the other with a complete frequency assignment record, including, among the basic characteristics reported, the date of first usage of each frequency by each of the stations shown regardless of the class of service, which were in actual operation on October 1, 1960, and located in the areas indicated in 2.(a) above for the frequency bands below 470 Mc/s, and located in the areas indicated in 2.(b) above for the frequency bands above 470 Mc/s. For the purpose of the revised arrangement, such record shall constitute, together with the 6th Edition of the Radio Frequency Record (Volume III), the master frequency assignment records for the two Agencies upon acceptance by the other agency. Accordingly, in implementing the Geneva (1959) Radio Regulations, [1] as amended by the EARC, Geneva 1963, [2] each Agency shall use these frequency records, in lieu of subsequent I.T.U. records, in

<sup>1</sup> TIAS 4893; 12 UST 2377.

<sup>2</sup> TIAS 5603; 15 UST 887.

matters leading to the resolution of pertinent cases of harmful interference involving stations authorized by the two Agencies.

- (b) Each Agency shall keep its frequency assignment data in the aforementioned records current through the submission to the other Agency of its recapitulative master frequency assignment records at intervals of three months.
4. (a) Before the Federal Communications Commission takes final action on any application for the use of any frequency in the bands herein, in the areas stipulated in paragraphs 2(a), 2(b)(1) and 2(b)(2) above involving an effective radiated power in excess of five watts, or if protection is desired for an operation involving a power of five watts, or less, it will refer the pertinent particulars of the proposed assignment (see Appendix 3, 4 or 5 as appropriate), in the form shown in Appendix 1 hereof, to the Department of Transport for comment as to whether the granting of an authorization will be likely to result in the causing of harmful interference to any existing Canadian assignments authorized by the Department.
- (b) Before the Department of Transport takes final action on any application for the use of any frequency in the bands herein, in the areas stipulated in paragraphs 2(a), 2(b)(1) and 2(b)(2) above involving an effective radiated power in excess of five watts, or if protection is desired for an operation involving power of five watts, or less, it will refer the pertinent particulars of the proposed assignment (see Appendix 3, 4 or 5 as appropriate), in the form shown in Appendix 2 hereof, to the Federal Communications Commission for comment as to whether the granting of an authorization will be likely to result in the causing of harmful interference to any existing United States assignments authorized by the Commission.
  - (c) Before either Agency takes final action on any application for use of any frequency in the bands herein which are allocated to a space service, in the area stipulated in paragraph 2(b)(3) above, regardless of the power involved, it will refer the pertinent particulars of the proposed assignment (see Appendix 3, 4 or 5 as appropriate), in the applicable form shown in Appendix 1 or 2 hereof, to the other Agency for comment as to whether the granting of an authorization will be likely to result in the degrading of the previously agreed protection to a receiving earth station.
  - (d) Neither the Federal Communications Commission nor the Department of Transport shall be bound to act in accordance with the views of the other. However, to keep such instances to a minimum, each Agency should cooperate to

the fullest extent practicable with the other by furnishing such additional data as may be required.

5. Whenever differences of opinion concerning the probability of harmful interference exist, which cannot be resolved otherwise, or in cases where the information available makes it difficult to determine whether harmful interference would be created by the granting of a particular authorization, arrangement should be made for actual on-the-air tests to be observed by representatives of both the Federal Communications Commission and the Department of Transport. Should harmful interference be caused to the existing station, the Agency having jurisdiction over the proposed station should be notified promptly so that the transmission of the interfering station may be halted. In the absence of a complaint of harmful interference, the authorization may not be granted until a lapse of 30 calendar days following the test period to allow sufficient time for the exchange, if desired, of engineering or other comments indicating an objection to the assignment.
6. In the interest of planned use of the spectrum, information concerning future expansions and adjustments of the several services allocated to use the above bands, in the areas stipulated above, shall be exchanged to the maximum extent practicable.
7. Coordination distance shall be the distance, calculated for any station, according to Recommendation 1A of the Final Acts of the EARC, Geneva, 1963.

**APPENDIX 1 TO  
ARRANGEMENT A**

**FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

AIRMAIL

Director, Telecommunications and  
Electronics Branch  
OTTAWA, Ontario .

In reply refer to  
6150 -

Serial \_\_\_\_\_  
Date: \_\_\_\_\_

Sir:

This office has received an application for radiocommunication facilities containing the following technical details of operation. Your comments regarding the use of the frequencies indicated below would be appreciated.

Name of applicant \_\_\_\_\_

File No. \_\_\_\_\_ Service: \_\_\_\_\_

CLASS OF STA- TION	NUM- BER OF STA- TIONS	LOCA- TION LAT. N., LONG. W.	FREQ. (MC/S)	MEAN POWER TO AN- TENNA (WATTS)	EMIS- SION	AN- TENNA GAIN & AZI- MUTH	AN- TENNA HEIGHT IN FT. ABOVE M.S.L.	AN- TENNA ELEV- ATION ANGLE DEGREES

Additional Information:

**Secretary  
FEDERAL COMMUNICATIONS COMMISSION**

COMMENTS with regard to application:

**DIRECTOR, TELECOMMUNICATIONS and  
ELECTRONICS BRANCH**

APPENDIX 2 TO  
ARRANGEMENT AAIR SERVICES  
TELECOMMUNICATIONS AND  
ELECTRONICS BRANCHDEPARTMENT OF TRANSPORT  
OTTAWAFederal Communications Commission Serial \_\_\_\_\_  
Washington, D.C. 20554 Date: \_\_\_\_\_

Sirs:

This office has received an application for radiocommunication facilities containing the following technical details of operation. Your comments regarding the use of the frequencies indicated below would be appreciated.

Name of applicant: \_\_\_\_\_

File No.: \_\_\_\_\_

Service: \_\_\_\_\_

CLASS OF STA- TION	NUM- BER OF STA- TIONS	LOCA- TION LAT. N., LONG. W.	FREQ. (MC/S)	MEAN POWER TO AN- TENNA (WATTS)	EMIS- SION	AN- TENNA GAIN & AZI- MUTH	AN- TENNA HEIGHT IN FT. ABOVE M.S.L.	AN- TENNA ELEVA- TION ANGLE DEGREES

Additional Information: \_\_\_\_\_

Director, Telecommunications  
and Electronics Branch

COMMENTS with regard to application: \_\_\_\_\_

AIRMAILSecretary  
FEDERAL COMMUNICATIONS COMMISSION

**APPENDIX 3 TO  
ARRANGEMENT A****BASIC DATA REQUIRED FOR COORDINATION IN THE FIXED  
SERVICE AND LAND MOBILE SERVICE BANDS BELOW 470 MC/S  
(EXCLUDING IONOSPHERIC SCATTER)**

- a. Operating agency
- b. Class of station
- c. Number of stations – base & mobile
- d. Frequency
- e. Location and coordinates
- f. Locality or area of reception
- g. Class of emission and necessary bandwidth
- h. Power (mean) delivered to the antenna
- i. Antenna gain (db) and azimuth, when available
- j. Antenna elevation in feet above mean sea level (MSL)

**APPENDIX 4 TO  
ARRANGEMENT A****BASIC DATA REQUIRED FOR COORDINATION OF STATIONS OF  
THE FIXED SERVICE AND MOBILE SERVICE IN BANDS ABOVE  
470 MC/S (EXCLUDING TROPOSPHERIC SCATTER)**

- a. Operating agency
- b. Class of station
- c. Number of stations – base and mobile
- d. Frequency
- e. Location and coordinates
- f. Locality or area of reception, including coordinates of receiving stations at fixed locations
- g. Class of emission and necessary bandwidth
- h. Power (mean) delivered to the antenna
- i. Antenna gain (db) and azimuth, and elevation angle when available
- j. Antenna elevation in feet above mean sea level (MSL)

- k. Polarization of transmitted wave
- l. Topographic map of territory between stations at fixed locations and Canada-U.S. borders (required only for stations within the coordination distance of a previously coordinated receiving earth station using the same band)

**APPENDIX 5 TO  
ARRANGEMENT A**

**BASIC DATA REQUIRED FOR COORDINATION OF EARTH STATIONS IN  
THE SPACE SERVICE**

- a. Operating agency
- b. Class of station
- c. Frequencies
- d. Location and coordinates
- e. Azimuthal and elevation coverage of celestial hemisphere as defined by main axis of antenna
- f. Class of emission and necessary bandwidth
- g. Power (mean) delivered to the antenna and, where applicable, estimated terminal coupling losses
- h. Maximum gain of antenna in the horizontal plane as a function of azimuth
- i. Maximum gain of antenna (referred to isotropic)
- j. Antenna elevation in feet above mean sea level (MSL)
- k. Polarization of transmitted wave
- l. Topographic map of territory between earth station and Canada-U.S. borders in the sector wherein the coordination distance exceeds the distance to the border
- m. Numerical values of terrain shielding in the pertinent directions

**ARRANGEMENT B****ARRANGEMENT FOR THE EXCHANGE OF FREQUENCY  
ASSIGNMENT INFORMATION AND ENGINEERING COM-  
MENTS ON PROPOSED ASSIGNMENTS ALONG THE  
CANADA/UNITED STATES BORDERS IN CERTAIN AVIATION  
BANDS**

(Adopted Ottawa, March 1962; Revised Washington, D.C.,  
October, 1964)

1. This arrangement involves assignments in the frequency bands set forth in paragraph 8 hereof.
2. In the interest of the planned use of the spectrum, information concerning future expansions and adjustments of the services allocated these bands, in the coordination zones stipulated in the Appendices attached hereto, shall be exchanged to the maximum extent practicable.
3. The Agency proposing to establish a new station, or to modify the basic characteristics of an existing station, shall furnish to the appropriate Agency the technical data necessary to complete coordination, in accordance with the attached Appendices.
4. The Agency responsible for coordination shall examine the information provided and shall reply as soon as practicable advising whether or not a conflict is anticipated. If so, the detail of the conflict and the particulars of the station likely to experience interference shall be supplied. New proposals or discussions may be initiated with the object of resolving the problem.
5. In the interest of planned use of the frequency bands allocated for use of space techniques in the Aeronautical Mobile (R) and Aeronautical Radionavigation Services, information concerning assignments to stations using space techniques in these bands shall be exchanged to the maximum extent practicable. This will involve assignments for:
  - a. All spacecraft; and
  - b. Transmitting stations and receiving stations which use space techniques.
6. Whenever differences of opinion concerning the probability of harmful interference exist, which cannot be resolved otherwise, or in cases where the information available makes it difficult to determine whether harmful interference would be created by the



proposed operation, mutual arrangement should be made for actual on-the-air tests to be observed by representatives of the U.S. agencies concerned and the Department of Transport. Should harmful interference be caused to the existing station, the Agency having jurisdiction over the proposed operation should be notified promptly so that the transmissions of the interfering station may be halted.

7. Neither the U.S. agencies concerned nor the Department of Transport shall be bound to act in accordance with the views of the other. However, to keep such instances to a minimum, each Agency should cooperate to the fullest extent practicable with the other by furnishing such additional data as may be required.

8. The bands treated and the agreed action on each are as follows:

<u>FREQUENCY</u>	<u>AUTHORIZED COORDINATION</u>		<u>REMARKS</u>
<u>Band Mc/s</u>	<u>AGENCY</u>		
	<u>U.S.</u>	<u>CANADA</u>	
74.60-75.40	FAA	DOT	Coordination not required at this time
108.0-117.975	FAA	DOT	SEE APPENDIX 1
117.975-121.975	FAA	DOT	SEE APPENDIX 2
121.975-123.075	FCC	DOT	Coordination not required at this time
123.075-123.575	FCC	DOT	Coordination not required at this time
123.575-128.825	FAA	DOT	SEE APPENDIX 2
128.825-132.025	FCC	DOT	SEE APPENDIX 3
132.025-135.0	FAA	DOT	SEE APPENDIX 2
135.0-136.0	FAA	DOT	SEE APPENDIX 4
328.6-335.4	FAA	DOT	SEE APPENDIX 1
960.0-1215.0	FAA	DOT	SEE APPENDIX 1
1540-1660	IRAC	DOT	Coordination not required at this time except for applications involving the use of space techniques.
4200-4400	IRAC	DOT	" "
5000-5250	IRAC	DOT	" "
15.4-15.7 Gc/s	IRAC	DOT	" "

**NOTE** "Coordination not required at this time" in the Remarks column indicates that the present use of these frequencies does not cause conflict in their application, either in the United States or Canada. However, authorized agencies are designated to coordinate any future use which may be capable of causing harmful interference.